Question 1: If a, b and c are unit vectors, then $|a - b|^2 + |b - c|^2 + |c - a|^2$ does not exceed

A) 4

B) 9

C) 8

D) 6

Ans $|a-b|^2 + |b-c|^2 + |c-a|^2$

$= 2(a^2+b^2+c^2 - 2(a\cdot b + b\cdot c + c\cdot$

and $|a| = |b| = |c| = 1$

$= 6 - \{(a+b+c)^2 - a^2 - b^2 - c^2\}$

$= 6 - (a+b+c)^2 + 3$

$= 9 - (a+b+c)^2 \leq 9$

Ans B